Required Report - public distribution

Date: 6/27/2012
GAIN Report Number:

Peru

Biofuels Annual

Annual

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Report Highlights:
Ethanol production in CY 2012 is expected at 220 million liters, increasing 22 percent compared to the previous year. Ethanol consumption is forecasted at 85 million liters in CY 2013. Biodiesel production in CY 2013 is forecasted at 32,000 MT while in CY 2012 is estimated at 280,000 MT.

Post:
Lima

Executive Summary:
Ethanol production in CY 2012 is expected at 220 million liters, increasing 22 percent compared to the previous year. There are two ethanol operations in Peru; both are in the northern region of Piura. Ethanol in Peru is produced out of sugar cane. Peru's favorable weather conditions and rich soil enable a year-round-harvest of sugar cane with very high yields, up to 200 metric tons (MT) of sugar cane per hectare (average yields are 160 MT per hectare). Ethanol consumption is forecasted at 85 million liters in CY 2013.

Biodiesel production in CY 2013 is forecasted at 32,000 MT. The largest Biodiesel producer in Peru is Palmas del Espino (PE). PE has a plant to process 7,357 hectares of palm in the San Martin region. PE is also establishing a new site with just under 10,000 hectares in the same region to add to its palm production. Another important producer is Heaven Petroleum. Together, Heaven Petroleum and PE account for 91 percent of biodiesel production in Peru. Biodiesel consumption in CY 2012 is estimated at 280,000 MT. Biodiesel imports in CY 2011 were 255,000 MT, of which 73 percent was from Argentina.

Author Defined:
Policy and Programs:
There are three regulations that provide the legal framework to the development of biofuels in Peru:

Law N° 28054 – Biofuels Maket Promotion: Establishes the general framework to promote the use of biofuels based on free market policies and with the objectives of increasing employment, diversifying fuel sources, strengthening agricultural development, reducing environmental contamination, and providing an economic alternative to illegal drug production. An additional goal of this law is to increase investment related to the production and commercialization of biofuels. The Law also creates the PROBIOCOM program under PROINVERSION (Peru's agency for promoting investment) with the objective of attracting investment for the production and commercialization of biofuels.

This law also calls for the creation of a Technical Committee to be responsible for determining the blending percentages and schedules, recommending regulations regarding biofuel production and commercialization, and leading a public awareness campaign regarding the benefits of biofuels. The Technical Committee includes the Ministries of Energy and Mining; Economy and Finance; Agriculture, PROINVERSION (investment), DEVIDA (GOP's alternative development agency), and the private sector.

Supreme Decree N°013-2005 EM – Regulation of the Biofuels Market Promotion: Establishes percentages of biofuel contents in fuels. Gasoline must contain 7.8 percent of ethanol and diesel must

have 5 percent of biodiesel. It also defines the terms mentioned in the law.

Supreme Decree N° 021-2007 EM – Regulation of the Commercialization of Biofuels: Approved in April 2007, this law establishes the requirements for trading and distributing of biofuels in Peru. It also establishes the quality standards of biofuels and the procedures to register a fuel blend with the Ministry of Energy. It also sets a schedule for including biofuels in the fuel blend. Beginning in 2010, gasoline should include 7.8 percent of ethanol. In 2011 diesel must contain 5 percent biodiesel.

These regulations also establish responsibilities among different government agencies and departments:

- Ministry of Agriculture: Promotes the development of areas for biofuels production.
- Ministry of Energy and Mines: Authorizes the commercialization of biofuels and its blends with gasoline and diesel.
- Ministry of Production: Authorizes the operation of biofuels producing plants.
- OSINERGMIN: Supervises and controls the operation during the different stages of the production chain.
- PROINVERSION: Promotes investment in the biofuels sector

Bioethanol and Biodiesel:

Ethanol

Production

Ethanol production in CY 2012 is expected at 220 million liters, increasing 22 percent compared to the previous year. The reason for this increase is the beginning of operations of a new plant in northern Peru. Ethanol production continues to be a fairly new business in Peru, it began in August 2009.

There are two ethanol operations in Peru; both are in the northern region of Piura. Ethanol in Peru is produced out of sugar cane. Peru's favorable weather conditions and rich soil enable a year-round-harvest of sugar cane with very high yields, up to 200 metric tons (MT) of sugar cane per hectare (average yields are 160 MT per hectare). Other competitors, such as Brazil, can only harvest 180 days per year with yields of 70 MT of sugar cane per hectare.

With an investment of $210 million, Caña Brava (owned by the Romero Group) is currently the largest ethanol producer in Peru. Caña Brava has established 6,000 hectares of sugar cane in Piura and built a processing plant with a capacity of 350,000 liters per day. Caña Brava began operations in August 2009.

Maple, through its subsidiary Maple Ethanol and Maple Biocombustibles, is also an important player in Peru's ethanol business. With an investment of $254 million, Maple has acquired 13,500 hectares in Piura, 7,800 hectares of which it plans to use for ethanol production from sugar cane. This project includes an industrial plant with a capacity of 130 million liters per year. Maple's project continuesto be under construction. Maple's ethanol plant was scheduled to begin operations in late 2011 but it was

delayed to May 2012. Ethanol production will gradually increase as Maple's operation reaches its capacity of 105 million liters per year.

There are other ethanol projects currently under study. Most of those projects involve sugar companies that are evaluating the economic feasibility of devoting some of its production to ethanol. However, there are no immediate plans for them to become operational.

Ethanol in Peru is produced using the diffusion method which is broadly used in Brazil. This method consists of shredding the cane very thinly then moving it through thirteen consecutive showers of warm water (between 70 and 80°C). The water that comes out of the last wash then is fermented. Once the alcoholic yeast is finished with the fermentation process, the liquor is distilled. This process is more efficient than traditional milling and it employs a continuous flow which reduces idle time to a minimum.

A 350,000-liter-per-day ethanol plant must have 20 hectares of sugar cane production per day to sustain its operation. With an average sugar content of 17 percent, 1 MT of sugar cane produces 170 kilograms of sugar which produces 0.11 cubic meters of ethanol. At the same time, 1 MT of sugar cane produces 330 kilograms of bagasse that produces 660 kilograms of steam. This steam is used to generate electricity through a turbine. Electric generation is an important component on ethanol projects. Not enough energy generated to satisfy the needs of the plant, but excess energy is sold to the national power grid. Ethanol operations in Peru require about 8 Megawatts of power per month and generate between 10 and 12 Megawatts of power per month.

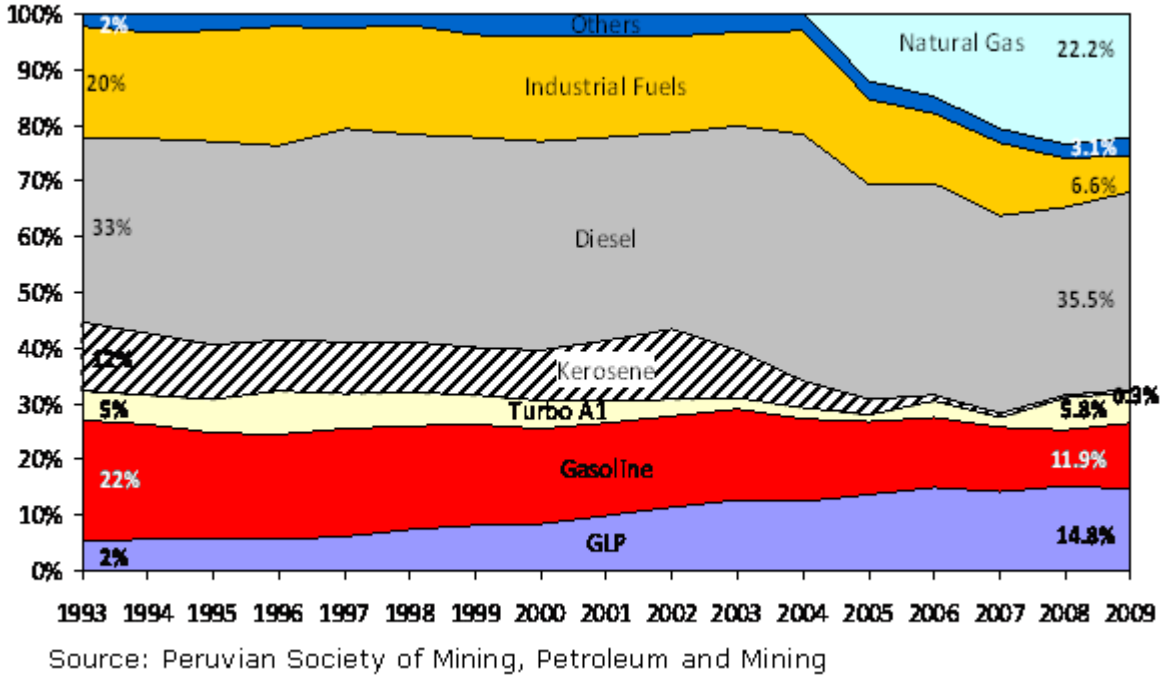
As a result of the growing ethanol industry, the GOP expects an increase of 45,000 hectare in arable land (potential is 200,000 hectares), increased investments to total between $500 million and $2 billion, and increases in exports and employment by $900,000 and 40,000 people, respectively.

Consumption

Ethanol consumption is forecasted at 85 million liters in CY 2013. In 2011, the ethanol blending schedule mandated by the government reached its maximum. Ethanol consumption is expected to stabilize at 85 million liters per year. An important milestone will occurred in 2011 when Lima implemented the 7.8 percent ethanol blend. Lima accounts for 65 percent of the ethanol demand in Peru. There are two companies in Peru that supply gasoline for the Peruvian market – Repsol and the state-owned Petroperu.

Gasoline demand has suffered a significant contraction in Peru due to the increasing demand for natural gas (GNV) and liquefied petroleum gas (GLP). The demand for alternative fuels will also limit local demand for ethanol. In CY 2011, the demand for GLP and GNV were estimated to account for about 42 percent of total fuel demand.

Peruvian Fuel Demand



Source: Peruvian Society of Mining, Petroleum and Mining

Trade

Peruvian ethanol exports are forecast at 129 million liters in CY 2013. This sharp increase is the result of the second ethanol plant becoming fully operational in CY 2012. The Netherlands was the main destination of Peruvian ethanol in CY 2011 accounting for 53 percent of total ethanol exports.

Conventional & Advanced Bioethanol (million liters)						
CY	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Production	N.A.	69	96	122	180	220
Imports	N.A.	0	0	0	0	0
Exports	N.A.	58	63	51	88	129
Consumption	N.A.	10	30	65	85	85
Ending Stocks	N.A.	1	3	6	7	6
No. of Biorefineries	N.A.	1	1	1	2	2
Capacity	N.A.	126	126	126	230	250
No. of Biorefineries	N.A.	N.A.	N.A.	N.A.	N.A.	N.A
Capacity	N.A.	N.A.	N.A.	N.A.	N.A.	N.A
Product Y	N.A.	N.A.	N.A.	N.A.	N.A.	N.A
Product Z	N.A.	N.A.	N.A.	N.A.	N.A.	N.A

Sugarcane	N.A.	410	960	1000	1500	2200
Feedstock B	N.A.	N.A.	N.A.	N.A.	N.A.	N.A
Feedstock C	N.A.	N.A.	N.A.	N.A.	N.A.	N.A
Feedstock D	N.A.	N.A.	N.A.	N.A.	N.A.	N.A

Sources: Trade, Peruvian Customs
Production, Ministry of Agriculture and Peruvian Biofuels Association

Biodiesel

Production

Biodiesel production in CY 2013 is forecasted at 32,000 MT. The largest Biodiesel producer in Peru is Palmas del Espino (PE). PE has a plant to process 7,357 hectares of palm in the San Martin region. PE is also establishing a new site with just under 10,000 hectares in the same region to add to its palm production. Another important producer is Heaven Petroleum. Together, Heaven Petroleum and PE account for 91 percent of biodiesel production in Peru.

There is a project to produce biodiesel out of jatropha in the southern coastal region of Ica. This project involves 50,000 hectares of which the first tranche will have 14,000 hectares. This very large project is in the early stages of implementation; the company has just acquired land rights and is in the process of securing the water supply.

Conventional & Advanced Biodiesel (thousand MT)

CY	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Production	10	10	32	32	32	32
Imports	20	92	103	167	255	255
Exports	0	0	0	0	0	0
Consumption	30	102	133	227	280	283
Ending Stocks	1	1	2	2	7	4
Production Capacity (Conventional Fuel)						
No. of Biorefineries	1	1	2	2	2	2
Capacity	25	25	200	200	200	200
Production Capacity (Advanced Fuel)						
No. of Biorefineries	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Capacity	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Feedstock Use (1,000 MT)						
Vegetable oil	10	10	31	61	80	80
Feedstock B	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Feedstock C	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Feedstock D	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Consumption

Biodiesel consumption in CY 2012 is estimated at 280,000 MT. Diesel continues to be the most consumed fuel in Peru; consumption reached 4.32 million MT in CY 201. Under the biofuels law, as of CY2011 diesel must include 5 percent of biodiesel. This triggered a sharp increase in demand as the blend only had 2 percent of biodiesel prior to the mandate.

Trade

Biodiesel imports in CY 2011 were 255,000 MT, of which 73 percent was from Argentina. Biodiesel imports increased considerably since the biofuels law entered into force in CY 2009. Biodiesel imports in CY 2013 are forecast to remain at 255,000 MT. U.S. exports accounted for about 1 percent.

A sudden increase of 700 percent of U.S. biofuels exports in CY 2009 triggered an imposition of anti-dumping and countervailing duties by the GOP. On August 23, 2010, INDECOPI, the Peruvian consumer defense institute, published on Resolution N° 151-2010-CFD-INDECOPI which imposes a permanent CVD of $178 per MT to pure biodiesel (B100) or any blends greater than B50 imported from the United States. This adds to the $212 per MT anti-dumping duty.